

ABSTRACT OF THE DISCLOSURE

[0072] Errors in pitch (frequency) allocation within a cochlear implant are corrected in order to provide a significant and profound improvement in the quality of sound perceived by the cochlear implant user. Pitch allocation errors are corrected by exercising more control over both the "place" where a stimulus is applied, and over the "temporal waveform structure" of the applied stimulus signal. The "place" of the stimulation is controlled more precisely through the use of "current steering", a technique for allowing stimulus current to effectively be applied at an almost infinite number of locations within the cochlea. The "temporal waveform structure" is controlled more precisely by allowing the cochlear implant user to make corrections and/or adjustments in the stimulus parameters so that the "pitch" perceived by the user is as true as possible, given the user's unique cochlear structure and sensitivities. In one embodiment, the user is stimulated with a reference signal, e.g., the tone "A" (440 Hz) and then the user is stimulated with a probe signal, separated from the reference signal by an octave, e.g., high "A" (880 Hz). The user adjusts the location where the probe signal is applied, using current steering, until the pitch of the probe signal, as perceived by the user, matches the pitch of the reference signal, as perceived by the user. In this manner, the user maps frequencies to stimulation locations in order to tune his or her implant system to his or her unique cochlea. In other embodiments, a similar process is used except that the user is stimulated with known reference and probe signal(s) related to speech sounds, e.g., vowel formants, or known consonant sounds.